520,628
Rec'd PCT/PTO 10 JAN 2005

(12) INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(19) World Intellectual Property Organization
International Bureau

(43) International Publication Date
16 September 2004 (16.09.2004)

PCT

(10) International Publication Number
WO 2004/078560 A1

(51) International Patent Classification[7]: B62D 5/04, 6/00, 111/00, 113/00, 119/00, 137/00 // 153/00

(21) International Application Number: PCT/IB2004/000538

(22) International Filing Date: 1 March 2004 (01.03.2004)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:
2003-059588 6 March 2003 (06.03.2003) JP

(71) Applicant *(for all designated States except US)*: TOYOTA JIDOSHA KABUSHIKI KAISHA [JP/JP]; 1, Toyota-cho, Toyota-shi, Aichi-ken 471-8571 (JP).

(72) Inventor; and

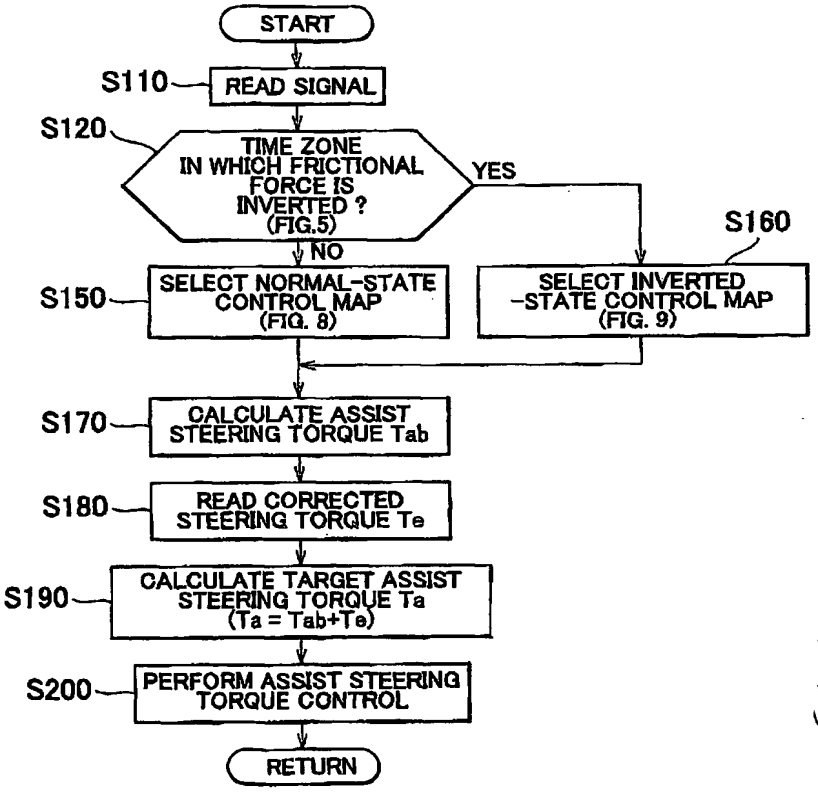
(75) Inventor/Applicant *(for US only)*: YOKOTA, Takahiro [JP/JP]; c/o Toyota Jidosha Kabushiki Kaisha, 1, Toyota-cho, Toyota-shi, Aichi-ken 471-8571 (JP).

(81) Designated States *(unless otherwise indicated, for every kind of national protection available)*: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW.

(84) Designated States *(unless otherwise indicated, for every kind of regional protection available)*: ARIPO (BW, GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PL, PT, RO, SE, SI, SK, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

[Continued on next page]

(54) Title: VEHICULAR STEERING CONTROL APPARATUS



(57) Abstract: The feeling of steering is improved by reducing the influence of the inversion of the direction of application of a frictional force in a steering system on a steering counterforce. A target relative rotational angle of a turning angle change unit for allowing a vehicle to make a turn stably is calculated, and front wheels of the vehicle are turned through automatic steering on the basis of the target relative rotational angle. However, if it is determined that a time zone in which the direction of application of a frictional force in a steering system is inverted as a result of the inversion of the turning direction of the front wheels that are turned through automatic steering has been entered, an inverted-state control map is set, and an assist steering torque is calculated from the map. Thus, in comparison with a normal state, the ratio of the assist steering torque to a steering torque is increased, so that the assist steering torque is increased.

WO 2004/078560 A1